International Journal of Natural Medicine and Health Sciences
ISSN (Online):2790-2471 ISSN (Print): 2790-2463
Volume 3(2) March 2024
Journal homepage: https://journals.iub.edu.pk/index.php/ijnms

Original Research

Prevalence of adhesive capsulitis in non-diabetic participants within age 50-70 years in Multan

Zainab Mustafa*, Muhammad Ahmad Zafar, Shabana Zafar, Fatima Aslam, Amna Nasir, Muhammad Ahmad, Ayman Fayyaz

Royal Institute of Medical Science Multan, University of Sargodha, Pakistan

Abstract

Correspondence:
zainabmustafa7890@gmail.com

Keywords: Adhesive capsulitis, non-diabetic, frozen shoulder, gleno-humeral joint, older population

Adhesive capsulitis includes stiffness and limitation at the shoulder joint. It is also called a frozen shoulder. Adhesive capsulitis is an inflammatory painful condition that causes a decrease in the range of motion of the joint. The healing process of a frozen shoulder takes up to two to three years most of the time. To see the prevalence of adhesive capsulitis in non-diabetic participants aged 50-70 years in Multan. A cross-sectional descriptive (observational) study was conducted using a self-made questionnaire. The study population was housing societies, data was collected from 278 participants from both genders, and data were analysed through SPSS version 25. This current study shown that out of all participants, 32.01% older population were having adhesive capsulitis. The prevalence of adhesive capsulitis in non-diabetics among the older population was high.

Citation: Zainab Mustafa, Muhammad Ahmad Zafar, Shabana Zafar, Fatima Aslam, Amna Nasir, Muhammad Ahmad, Ayman Fayyaz. Prevalence of adhesive capsulitis in non-diabetic participants within age 50-70 in Multan. IJNMS. 2024; 3(2): 40-42.

Introduction: Adhesive capsulitis is the term which is also used for frozen shoulder, it is defined as a condition in which shoulder joint stiffens and causes pain. In severely unwell patients, the normal arm swing that occurs when walking may be missing. If the affected shoulder is examined further, muscular atrophy might be found. Palpation of the shoulder joint demonstrates widespread pain. In these cases, the distal neurology must be unharmed. When the shoulder is moved against resistance, it hurts and has a noticeable range of motion restriction, mimicking a torn rotator cuff. The Apley's scratch test may be used to gauge internal rotation[1].

In this, glenohumeral joint capsule becomes fibrosis which results in progressive limitation in the range of motion of the joint and gradually increasing stiffness (typically external rotation). However, the patients can have a fast onset of symptoms and a protracted healing process. Even though it could take up to two or three years, most of the time, the recovery is rewarding. However, symptoms of adhesive capsulitis may produce suddenly and then cause a very delayed and slow healing process [2].

The glenohumeral joint's capsule thickens and contracts with time as a result of the incapacitating disorder adhesive capsulitis [3]. If there is loss of passive range of motion it is a very significant point in the actual diagnosis of the adhesive capsulitis. Along with it other conditions such as any tendonitis, bursitis or rotator cuff injury are related with the loss of active movement while passive movement remains normal [4]. Adhesive capsulitis, sometimes referred to as frozen shoulder, is a common condition that severely restricts shoulder function and causes pain. Usually, a physical examination and the patient's medical history are used to diagnose it [5].

There are two types of adhesive capsulitis: primary and secondary. The basic condition is usually idiopathic, has an ominous beginning, and is frequently accompanied by other conditions including diabetes mellitus, thyroid illness, medications, hypertriglyceridemia, or cervical spondylosis [6]. Usually, a shoulder injury or trauma is followed by the secondary disease. Rotator cuff tears, fractures, surgery, and immobilization are typical ailments [1]. Shoulder frozen is a prolonged disease of soreness and discomfort along with decreased range of motion and also causes disability and dysfunctions. After this disease patient is unable to perform their activities of daily life normally. Recent research on the histology and pathophysiology of frozen shoulder shown that hyaluronan can be used intra-articulatory to effectively relieve symptoms [7].

Pathophysiology of adhesive capsulitis involves several key processes:

Adhesive capsulitis often begins with inflammation of the synovial membrane, which lines the inner surface of the joint capsule. The inflammatory process may be triggered by various factors, including trauma, injury, overuse, or underlying medical conditions such as diabetes or autoimmune diseases. Inflammation leads to pain and swelling within the shoulder joint.

Chronic inflammation can stimulate the proliferation of cells within the synovial membrane, leading to the formation of excessive scar tissue (fibrosis) within the joint capsule. This fibrotic tissue gradually thickens and contracts, causing the capsule to become tight and stiff. The exact mechanisms underlying this fibrotic process are not fully elucidated but likely involve aberrant wound healing responses and dysregulated production of extracellular matrix components. As fibrosis progresses, adhesions may form between the layers of the joint capsule, limiting the normal gliding motion of the shoulder joint. These adhesions further contribute to the restricted range of motion and stiffness characteristic of adhesive capsulitis.

Prolonged shoulder immobility due to pain and stiffness can lead to muscle weakness and atrophy in the surrounding shoulder girdle muscles. Additionally, altered biomechanics and compensatory movement patterns may develop, further exacerbating shoulder dysfunction. Neurogenic inflammation and sensitization of peripheral nerves may also play a role in the pathophysiology of adhesive capsulitis. Nociceptive signals from the inflamed and fibrotic tissues contribute to pain perception, while changes in nerve sensitivity and central nervous system processing may contribute to the persistence of symptoms. Over time, untreated adhesive capsulitis can lead to secondary changes such as joint degeneration, osteophyte formation, and secondary impingement syndrome. These changes may further contribute to pain, dysfunction, and loss of function in the affected shoulder.

Primary Adhesive Capsulitis:

Primary adhesive capsulitis occurs spontaneously without an apparent underlying cause or triggering event. It often develops gradually over time, with no clear history of trauma or injury to the shoulder.

Primary adhesive capsulitis is characterized by pain, stiffness, and restricted range of motion in the shoulder joint. The symptoms tend to progress slowly through three distinct phases: the painful phase, the adhesive phase (stiffness predominates), and the resolution phase (gradual improvement in range of motion).

Secondary Adhesive Capsulitis:

Secondary adhesive capsulitis is often precipitated by an identifiable underlying cause or systemic condition. These may include:

Trauma or injury to the shoulder: Previous shoulder surgery, fractures, or dislocations can lead to secondary adhesive capsulitis.

Material and Methods:

Current study was a descriptive study. A cross sectional quantitative survey was done by using standardized questionnaire. Sample size was 278 including non-diabetic older population and current study setting was 10-15 housing societies of Multan and study was conducted in 12 weeks.

Inclusion criteria:

- People more than 50 years.
- Both male and female.

Exclusion criteria:

- Patient with diabetic origin
- Trauma
- Dislocation
- Fracture
- Bedridden patients

In this survey, permission was taken from the individuals for the collection of data. Firstly, informed consent was taken from older population and their answers were recorded by their responses on the questionnaire. Responses were recorded in questionnaire and special tests i.e. Apley's Scratch test was performed. The Apley's Scratch test had a specificity of 70%, sensitivity60% were performed. In this current research. Apley's scratch test was performed to find about the prevalence of adhesive capsulitis which is explained further. As seen in the illustration, this test combines lateral movement with abduction and horizontal rotation with adduction. The time needed to complete the assessment is reduced by this strategy. Additionally, by having the patients do the coordinated motions, the examiners have a better picture of the patients' functional capacity[8].

Statistical analysis:

Current study showed that out of 100% of the participants, 32.01% older participants were having adhesive capsulitis whereas, 67.99% participants were not having adhesive capsulitis.32.01% participants were having positive apley's scratch test which showed that out of 278 sample only 89 participants were having adhesive capsulitis.

Results:

In the present study, there were 53.60% females and 46.40% males from whom data was collected to see the prevalence of adhesive capsulitis. Histogram was plotted to represent age of the participants who participated in study. Normal curve was also drawn to show the data distribution among age groups and results showed that age of participants ranged from 50 years to 70 years with mean and standard deviation 57.67±5.90.

The results of the level of difficulty in lifting heavy objects showed that 38 participants had normal shoulder and no difficulty in lifting heavy objects. 103 participants reported that they had little bit of difficulty in lifting heavy objects. 61 participants reported that they had moderate level of difficulty in lifting heavy objects. 62 participants had extreme level of difficulty in lifting and 14participants reported that it was impossible for them to lift any heavy object. According to results 32.01% participants had positive Apley's scratch test showing adhesive capsulitis in 89 participants while 67.99% participants had negative Apley's scratch test results showing that 189 participants were not having adhesive capsulitis.

Participant's level of difficulty in abduction of shoulder results showed that 32.01% participants can perform abduction easily. 34.89%and 15.11% participants had little and moderate level of difficulty in performing abduction respectively. 12.23% participants had extreme difficulty in performing abduction whereas 32.01%participants reported that it was impossible for them to abduct.

Discussion:

The current study was aimed to find out the prevalence of adhesive capsulitis in non-diabetic participants within age 50-70 in Multan. In support of our study, a research has found in which 140 persons with shoulder pain participated in a research had 71.4% adhesive capsulitis, in this population 40 patients had frozen shoulder, in which 26 (65%) were males and 14 (35%) were females. Only 21 participants were non-diabetics while others are diabetics.

In contrast to our study, one research found that only a very small percentage of approximately 0.35% prevalence of adhesive capsulitis were recorded in one year in 65 years' older population. The intensity of pain may be mild, moderate and severe according to medical condition. Level of difficulty was asked during lifting of heavy objected from the participants and the results were represented by computing frequency table which represents 8.4 % population feels no difficulty or pain during lifting of heavy objects with involved arm while 91.6% population have little to extreme difficulty in lifting of heavy objects.

Conclusions:

The prevalence of adhesive capsulitis in non-diabetic among older population was high.

References

1. St Angelo JM, Fabiano SE. Adhesive capsulitis. 2018;
2. Mezian K, Coffey R, Chang K-V. Frozen shoulder. StatPearls [Internet]. StatPearls Publishing; 2021.
3. Nakandala P, Nanayakkara I, Wadugodapitiya S, Gawarammana I. The efficacy of physiotherapy interventions in the treatment of adhesive capsulitis: A systematic review. Journal of back and musculoskeletal rehabilitation. 2021;34(2):195-205.
4. Inayat F, Ali NS, Shahid H, Younus F. Prevalence and determinants of frozen shoulder in patients with diabetes: a single center experience from Pakistan. Cureus. 2017;9(8)
5. Stella SM, Gualtierotti R, Ciampi B, et al. Ultrasound features of adhesive capsulitis. Rheumatology and Therapy. 2022;9(2):481-495.
6. Small KM, Adler RS, Shah SH, et al. ACR Appropriateness Criteria® shoulder pain-atraumatic. Journal of the American College of Radiology. 2018;15(11): S388-S402.
7. Yuan X, Zhang Z, Li J. Pathophysiology of adhesive capsulitis of shoulder and the physiological effects of hyaluronan. European Journal of Inflammation. 2017;15(3):239-243.
8. Magee DJ, Manske RC. Orthopedic physical assessment-E-Book. Elsevier Health Sciences; 2020.